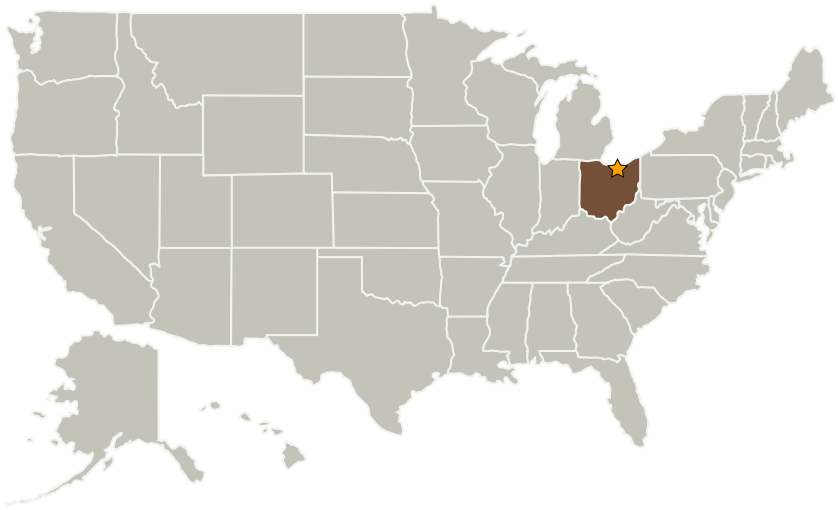
Magnesium Diboride Superconducting Coils for Electric Propulsion Systems for Large Aircraft, Phase II

Completed Technology Project (2004 - 2006)

Project Introduction

The recent development of magnesium diboride superconducting wires makes possible the potential to have much lighter weight superconducting coils for heavy aircraft motors than with any other potential metal or ceramic superconductor. The magnesium diboride superconductor can be cooled to 20 K by the liquid hydrogen fuel. The lighter weight coils, especially in the rotor, will enable a lighter weight support structure so the motor weight will be reduced even more for the same horsepower motor. For this NASA SBIR Phase II our objective is to design, construct, test, and assembly MgB2 rotor coil packs to replace the copper rotor coil packs for the cryogenic motor test bed being built for NASA

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio
Hyper Tech Research, Inc.	Supporting Organization	Industry	Columbus, Ohio

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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Glenn Research Center (GRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Ohio

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX14 Thermal Management Systems
  - TX14.1 Cryogenic Systems
    - TX14.1.3 Thermal Conditioning for Sensors, Instruments, and High Efficiency Electric Motors